Amendments to the Claims:

The following listing of claims replaces all prior versions and listings of the claims in this application.

Listing of the Claims

1. (Currently amended) A method for proliferating cardiomyocytes comprising: introducing nucleotide sequences coding for a nuclear localization signal, a ~~recombinant~~ D-type cyclin gene and a ~~recombinant~~ cyclin dependent kinase gene directly into the ~~nucleus of~~ cardiomyocytes using a vector ~~or other delivery system~~, and cultivating or holding said cells, wherein said cyclin gene is a gene coding for cyclin D1, D2 or D3 and wherein said cyclin dependent kinase gene is a gene coding for CDK4 or CDK6.

2. (Currently amended) A method for proliferating cardiomyocytes comprising: adding nucleotide sequences coding for a nuclear localization signal to at least one D-type cyclin gene and a cyclin dependent kinase gene; and introducing each of said genes to cardiomyocytes *in vitro*, and then cultivating said cells, or introducing each of said genes directly to cardiomyocytes *in vivo* using a vector ~~or other delivery system~~, wherein said cyclin gene is a gene coding for cyclin D1, D2 or D3 and wherein said cyclin dependent kinase gene a gene coding for is CDK4 or CDK6.

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Previously presented) The method of claim 2, wherein said cyclin gene and said cyclin dependent kinase gene are transferred to the cardiomyocytes using an adenovirus vector.

7. (Withdrawn) A recombinant vector comprising a cyclin gene comprising a nucleotide sequence coding for a nuclear localization signal.

8. (Withdrawn) A recombinant vector comprising a cyclin gene and a cyclin dependent kinase gene, wherein at least one of said genes is attached with a nucleotide sequence coding for a nuclear localization signal.

9. (Withdrawn) The recombinant vector of claim 7 or 8, wherein said cyclin is a cyclin that is capable of activating a mammalian CDK4 or CDK6.

10. (Withdrawn) The recombinant vector of claim 7 or 8, wherein said cyclin dependent kinase is a cyclin dependent kinase that is activated by cyclin D1, D2, or D3.

11. (Withdrawn) The recombinant vector of claim 7 or 8, further comprising an adenovirus vector.

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Previously presented) The method of claim 2, wherein said genes comprising said nucleotide sequences are introduced to the cardiomyocytes *in vitro*, and cultivating said cells.

17. (Previously presented) The method of claim 2, wherein said genes comprising said nucleotide sequences are introduced to the cardiomyocytes *in vivo*.

18. (Previously presented) The method of claim 1 or 2, wherein said cyclin activates CDK4.

19. (Previously presented) The method of claim 1 or 2, wherein said cyclin activates CDK6

20. (Previously presented) The method of claim 2, wherein said cyclin is D1.

21. (Previously presented) The method of claim 1, wherein the cyclin is D2 or D3.

22. (Previously presented) The method of claim 2, wherein the cyclin is D2 or D3.

23. (Previously presented) The method of claim 1, wherein the cyclin dependent kinase is CDK4.

24. (Previously presented) The method of claim 1, wherein the D-type cyclin is D1.

25. (Previously presented) The method of claim 16, wherein the cyclin dependent kinase is CDK4.

26. (Previously presented) The method of claim 16, wherein the D-type cyclin is D1.

27. (Previously presented) The method of claim 16, wherein the cyclin dependent kinase is CDK4 and the D-type cyclin is D1.

28. (Previously presented) The method of claim 17, wherein the cyclin dependent kinase is CDK4.

29. (Previously presented) The method of claim 17, wherein the D-type cyclin is D1.

30. (Previously presented) The method of claim 17, wherein the cyclin dependent kinase is CDK4 and the D-type cyclin is D1.

31. (Previously presented) The method of claim 17, wherein the D-type cyclin and cyclin dependent kinase are transferred to the cardiomyocytes using a viral vector.

32. (Previously presented) The method of claim 1, wherein the D-type cyclin and cyclin dependent kinase are introduced into the nucleus of the cardiomyocytes using a viral vector.

33. (Previously presented) The method of claim 2, wherein the D-type cyclin and cyclin dependent kinase are transferred to the cardiomyocytes using a viral vector.

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Currently amended) A method for proliferating cardiomyocytes *in vitro* comprising: introducing nucleotide sequences coding for a nuclear localization signal, a ~~recombinant~~ D-type cyclin and a recombinant cyclin dependent kinase gene directly into the ~~nucleus of~~ cardiomyocytes using a vector ~~or other delivery system~~, and cultivating or holding said cells, wherein said cyclin gene is a gene coding for cyclin D1, D2 or D3 and wherein said cyclin dependent kinase gene is a gene coding for CDK4 or CDK6.

38. (Previously presented) A method for proliferating cardiomyocytes *in vivo* comprising: adding nucleotide sequences coding for a nuclear localization signal to at least one D-type cyclin gene and a cyclin dependent kinase gene; and introducing each of said genes directly to cardiomyocytes *in vivo* using a viral vector, wherein said cyclin is cyclin D1, D2 or D3 and wherein said cyclin dependent kinase is CDK4 or CDK6.